1. General information

The Lexmark™ X500n and X502n are color laser MFPs that combine print, scan, copy, and fax functions. The X500n and X502n are the ideal MFPs for presentations, business graphics, line art, and text. They use laser diode electrophotographic technology to deliver remarkable quality print images and text. The scan and copy functions work with A4 , letter, and legal (ADF only) size paper. Photographic quality images are possible with scan function. The FAX function delivers a wide range of functionality to the office user. The MFPs can be used as shared network or desktop devices.

Models

The Lexmark X5xx MFPs are available in the following models:

Model	Configuration	Machine type
X500n	Print, copy, scan, network	7100-010
X502n	Print, copy, scan, fax, network	7100-110

MFP Specifications

General device technical specifications

Interfaces

	X500n	X502n
USB 2.0	X	X
Ethernet 10/100 Base T	X	X

Note: The USB 2.0 and network interfaces can be used simultaneously.

The USB interface supports:

- Windows 98 SE
- Windows Me
- Windows NT
- Windows 2000 Professional
- Windows XP Operating Systems
- Windows Server 2003 Operating Systems
- Windows Vista 32/64 bit
- Macintosh OS X version10.1–40.4 (Power PC and Intel)

Note: For USB attachment, a USB cable (P/N 12A2405) is recommended and must be ordered separately.

The standard Ethernet connection and optional N2100 Series print servers support the following protocols:

- TCP/IP– The TCP/IP standard set of application services are supported including DHCP, BOOTP, WINS, SNMP (MIB-2, host resources MIB, printer MIB, enterprise MIB, SNMP traps), HTTP, LPR/LPD, FTP, IPP1,SLP, DDNS
- AppleTalk

This MFP with standard Ethernet supports an Embedded Web Server. The current status of the operator panel is viewable using the resident Web pages.

Processor

ARM-11core running at 366mhz.

Supported operating systems

This MFP is compatible with applications running under the following operating systems for either local or network connections:

Macintosh

- Macintosh OS X version 10.2–40.4 and above. (Power PC and Intel)

The software applications that operate with most Apple LaserWriter printers will generally operate with this printer.

Download the latest Lexmark printer PPD files or printer drivers from www.lexmark.com.

Microsoft Windows

- Microsoft Windows Me
- Microsoft Windows 2000 Professional
- Microsoft Windows 2000 Server
- Microsoft Windows 2000 Advanced Server
- Microsoft Windows XP Home
- Microsoft Windows XP Professional
- Microsoft Windows Server 2003
- Microsoft Windows Vista 32/64 bit

Download the latest printer drivers from http://www.lexmark.com.

The Windows software applications, which operate in the operating systems listed above, are best suited to run with the drivers supplied with this MFP. The drivers for Windows take advantage of the MFP's functions and increase the MFP's performance wherever possible.

Memory configuration

Standard DRAM	128MB
Optional SDRAM	N/A
Max DRAM	128MB

Physical specifications and weight (WIP)

The following table contains the dimensions and weights for each MFP model and option. This does not include packaging but does include the print cartridge that ships with the MFP.

	Width	Depth	Height	Weight[2]
	inch	inch	inch	lb
	mm	mm	mm	kg
MFP				
Lexmark X500n/ X502n[1]	18.9	17.2	21	77.0
	480	437	531	35.0
Paper options				
530-Sheet drawer	18.1	18.5	7.3	13.3
	460	470	185	6.0
530-Sheet tray	11.2	14.4	4.5	4.2
	285	365	115	1.9
Standard tray	10.8	13.0	2.2	2.2
	275	330	55	1.0
Tray set to legal	10.8	15.9	2.2	2.4
	275	405	55	1.1
[1] Comes with standard input tray and starter cartridges.				
[2] Weight does not include packaging or pubs.				

Operating clearances

MFP sides	X5xxn	X5xxn with 530-sheet tray
Left side	8 in (203 mm)	8 in (203 mm)
Right side	20 in (508 mm)	20 in (508 mm)
Front	28 in (711 mm)	28 in (700 mm)
Rear	10 in (254 mm)	10 in (254 mm)
Top	16 in (400 mm)	16 in (400 mm)

Packaging and shipping dimensions

	Width	Depth	Height	Weight
MFP*	in	in	in	lb
	mm	mm	mm	kg
X500n / X502n	23.4	22.6	29.9	77
	595	575	760	42.0
Options				
530-Sheet drawer	21.9	22.4	10.9	18.7
	556	570	277	8.5
* Includes start-up kit (supplies)				

Power and electrical specifications

Printing states	X5xxn
Off	0 W
Average power while operating	
Continuous printing	670 W
Power consumption, standby	
Power saver on	35 W
Power saver off	200 W
Maximum current while operating	
115 Volts	11 A
230 Volts	6 A
Average current while operating	
115 Volts	6.0 A
230 Volts	3.0 A

Environment

Environment	Specifications
Operating	
Air temperature—product operating	10 to 32.5°C (50 to 90.5°F)
Air temperature—product power off	5 to 35°C (41 to 95°F)
Air relative humidity	15 to 80%
Altitude	0–2,500 m (0–8,200 ft.)
Ship / Storage	
Temperature-printer and supplies	0 to 35°C (32 to 95°F)*
Relative humidity	10 to 90% RH
Atmospheric pressure	613 to 1607 hPa (460 to 800 mm Hg)
*Severe High 35 to 40°C (95 to 104°F), Severe Low -10 to 0°C (14 to 32°F). The period under severe shall not be deemed to be continuous, but rather a total of such intermittent periods (48 hours at most for any one period).	

Print engine specifications

Print engine resolution

600 x 600 dpi, 1200 x 600 dpi

Color balance settings

This MFP offers color balance control. It is a color correction option that allows you to increase or decrease the amount of toner going to the page for all four color planes. The scale ranges from -10 to +10.

Emulations

Raster Graphics (CMYK bi-tone JBIG Compressed)

Print engine speed and performance

	Pages/minute)	
Media size	**Standard tray**	
	Mono	Color
Letter	Up to 31	Up to 8
A4	Up to 31	Up to 8
Legal	Up to 16	Up to 8
Transparencies	Up to 3	Up to 2
Thick card stock	Up to 3	Up to 2
Labels (letter & A4)	Up to 5	Up to 3
Medium thick card stock (letter & A4)	Up to 4	Up to 3
Envelopes	Up to 5	Up to 3

Print engine time to first print

Media type/Media size	First print time	
	Mono	**Color**
Plain paper mode / A4, letter	13 seconds	19 seconds
Transparency mode / A4, letter	23 seconds	29 seconds
Label–middle thickness stock / A4, letter	17 seconds	23 seconds
Middle thick stock–glossy / A4, letter	16 seconds	22 seconds
Thick stock / A4, letter	23 seconds	29 seconds
Envelope (1) mode / Commercial #10, International DL	18 seconds	24 seconds
Envelope (2) mode / Commercial #10, International DL	23 seconds	29 seconds
Note: Note: Time to first page (TTFP) is the time from the moment when the host sends the print signal until the moment the trailing edge of the first page leaves the exit feed rollers. TTFP is measured using a simple text (single character) page.		
Note: Note: Warm up time, 60 seconds maximum, is the time elapsed from when the power is turned on to when the Ready status is reached.		

Print engine paper and media specifications

Print area

The printable area is up to 4.0 mm (0.158 in) from the top and bottom of the media, and up to 3.0 mm (0.118 in) from the left and right edges. Any information placed outside this specified printable area will not print. For envelopes, the printable area is up to 4.0 mm (0.158 in) of the left and right edges, and 3.0 mm (0.118 in) of the top and bottom edges.

Print engine input and output configurations

The following table shows the standard number of input sources and output destinations, as well as the estimated capacity of each. Capacity may vary and is subject to media specifications and MFP operating environment. The capacities listed are based on plain paper at 75 g/m^2.

Sources and capacities	X500n / X502n
Input sources	
Number of standard sources	1
Number of optional input drawers	1
Maximum number of input sources[1]	2
Maximum input capacity	780
Input capacities[2]	
Standard input	
Primary tray capacity	250
Total standard capacity	250
Optional input	
Optional tray 1 capacity	250
Optional tray 2 capacity	530
Output destinations	
Number of standard destinations	1
Output capacities	
Standard output bin capacity (top)	
Media up to 20 lb paper	250
[1]Optional input drawer is a 530-sheet capacity drawer. Only one optional drawer may be installed at any time.	
[2]The MFP supports top output (facedown) as standard. No additional output options are available.	
Note: All capacities are based on use of 20 lb paper.	

Media input types and weights

Source	Type	Standard tray Legal tray	530–Sheet tray	MFP menu Item	
				Paper type	Paper weight
Paper[1,2] (grain long)	Xerographic or bond paper	60–74 g/m^2 (16-19 lb)	60–74 g/m^2 (16-19 lb)	Plain paper	Light
	Xerographic or bond paper	75–120 g/m^2 (20-32 lb)	75–120 g/m^2 (20-32 lb)	Plain paper	Normal
	100% Cotton	75–120 g/m^2 (24-32 lb)	75–120 g/m^2 (24-32 lb)	Plain paper	Heavy
Card stock	Index	163 g/m^2 (90 lb)	N/A	Card stock	Normal
	Index	164–210 g/m^2 (91-110 lb)	N/A	Card stock	Heavy
Transparency[3]		PN 12A5940 PN 12A5941	N/A	Transparency	
Labels[2]			N/A	Label	
Envelopes		75–90 g/m^2 (20–24lb)	N/A	Envelope	Normal
[1] Punched, embossed, water-marked, perforated, punched, inkjet paper or plastic-coated media should not be used.					
[2] Only occasional use of paper labels in an office environment is supported.					
[3] Only PN 12A5940 and 12A5941 should be used.					
There is no automatic paper type sensing. These settings should be manually set in the operator panel.					

Media sizes

Media sizes	Dimensions		Input			Output
			Universal 250-sheet tray [1] Standard setting	Universal 250 sheet tray Set to legal	Optional 530-sheet tray [2]	Standard 250-sheet bin
	mm	**in**				
A4	210 x 297	8.27 x 11.7	X	X	X	X
A5	148 x 210	5.83 x 8.27	X			X
JIS B5[3]	182 x 257	7.17 x 10.1	X	X		X
Letter	216 x 279.4	8.5 x 11	X	X	X	X
Legal	216 x 356	8.5 x 14		X		X
Executive	184.2 x 266.7	7.25 x 10.5	X	X	X	X
Folio	216 x 330	8.5 x 13	X			X
Statement	139.7 x 215.9	5.5 x 8.5	X			X
Universal[1]			X	X		X
Standard 250–sheet letter tray	104.8 x 210 to 215.9 x 297	4.125 x 8.27 to 8.5 x 11.7				
Optional 250–sheet legal tray	104.8 x 210 to 215.9 x 355.6	4.125 x 8.27 to 8.5 x 14				
Envelope sizes	**Dimensions**	**Dimensions**				
9 Envelope[2]	98.4 x 225.4	3.875 x 8.9	X	X		X
COM 10 Envelope	104.8 x 241.3	4.12 x 9.5	X	X		X
DL Envelope	110 x 220	4.33 x 8.66	X	X		X
C5 Envelope[2]	162 x 229	6.38 x 9.01	X	X		X
B5 Envelope[2]	176 x 250	6.93 x 9.84	X	X		X
[1] Select Universal when using a non-standard size sheet of print material. The MFP formats the page for the maximum size 8.5 X 14 in(215.9 X 355.6 mm). Set the actual size from your software application.						
[2] Supported through the driver.						
[3] B5 may be supported in optional tray 1, but size sensing must be turned off.						

Output capacity by media and source

Source	Media	Capacity	Orientation
Standard output bin (top)[1]	Supports all sizes listed in the "Media sizes" table	250 sheets (20 lb paper) 50 Transparencies	Collated Facedown

Scan specifications

Resolution	1200 X 2400 dpi
Scan size	216mm X 297 mm (flatbed), Window size 220mm X 300mm
Scan depth	48 bits
Lamp warm up time	Less than 3 seconds
MTF	More than 30%
Depth of focus	-2 mm to +2 mm
Magnification	Less than 0.5%
Scanning	TWAIN
Connectivity	USB 2.0, and Ethernet (10/100 Base TX-TCP/IP only)
Push scan	Scan to E-mail, scan to FTP, scan to host PC
Web status monitor	Yes
Scanner driver (TWAIN) features	
Scan mode	True color, grayscale, black & white
Contrast adjustment	Yes
Brightness adjustment	Yes
Color / Mono switch	Yes
Scan to E-mail feature	
Network requirements	TCP/IP and an SMTP gateway
Authorization function	SMTP authentication, POP3 before SMTP
Register E-mail address	By Web page
Scan destination	Set up in scan profile
E-mail address maintenance	By Web page
Job Search	By profile name
Subject input	20 characters maximum. Entered by the Web page interface
Maximum E-mail data size	
Supported file formats	TIFF, JPEG, PDF

Copy specifications

Resolution	600 dpi X 600 dpi (flatbed), 600 X 300 dpi(ADF), Print from copy —600 X 600 dpi 9600 dpi X 9600dpi w/ software interpolation
Original paper sizes	A4, Letter, Legal (ADF only), B5 (JIS), Executive
Copies per minute	Mono: up to 21, Color: up to 7[1]
Time to first copy	Less than 30 seconds[2]
Multiple copies	99 copies maximum
Output paper sizes	A4, Letter, Legal (optional cassette only)
Image density adjustment	5 levels, manual only
Image quality modes	Text, Photo, and Mixed
Zoom	25% to 400% in increments of 1%
Present reduction ratio	US: 25%, 65%, 78%, 93%
	EU: 25%, 71%, 86%, 93%
Present enlargement ratio	US: 129%, 155%, 200%, 400%
	EU: 122%, 141%, 200%, 400%
Advanced copier features	
Combine multiple copies into one copy.	2 into 1, 4 into 1. Can be toggled between landscape and portrait.
Electronic sort	Yes
Scan once print many	Yes
Limitless paper feed	Yes
Memory copy	Standard
Copy counter indicator	Standard
Jam recover auto restart	For print jams only.
Buzzer to finish job	Yes
ADF	
ADF width	5.5 to 8.5 inches (139.7 to 215.9 mm)
ADF length	5.5 to 14 inches (139.7 to 355.6 mm)
ADF capacity	35 sheets

1 - assumes 50% coverage
2 - Does not include scanner and printer warm-up time.

Fax specifications

Phone network connectivity

Phone networks types supported	Both PSTN and PABX are supported.
Compatibility	T30(ITU-T Super G3) is supported. Color fax is not supported.
Modem speed	Automatic fallback: 33600 bps V34, V17, V29, and V27ter are supported for image transmission. V8, and V21 are supported for control channels.
Compression	MH, MR, MMR, and JBIG

Document Sizes supported

ADF width	5.5 to 8.5 inches (139.7 to 215.9 mm)
ADF length	5.5 to 14 inches (139.7 to 355.6 mm)
ADF capacity	35 sheets
Flatbed width	8.5 inches (216 mm)
Flatbed length	11.7 inches (297 mm)
Scanning width	215.9 mm maximum
Printing width	Legal – 215.9 mm X 355.6 mm Letter – 215.9 mm X 279.4 mm A4 - 210.0 X 297.0 mm

Fax scan resolutions

Horizontal		
Fixation	200 dpi	8 dot/mm
Vertical		
Standard	100 dpi	3.85 dot/mm
Fine	200 dpi	7.7 dot/mm
Photo	200 dpi	7.7 dot/mm

Miscellaneous FAX specifications

Halftone/error diffusion	Error diffusion
Speed dial	50 entries (name 20 characters, number 40 digits)
Quick dial	20 entries (name 20 characters, number 40 digits)
On hook dial	Yes
Direct Fax number entry	Yes
Re dial	Yes
Transmission	
Immediate transmission	Yes
Memory transmission	Yes
Page retransmission	Yes
Error correction mode	Yes
Broadcasting	Yes (100 entries)
Reception	
FAX only mode	Yes
Manual mode	Yes
Auto reduction	Yes (Threshold 74%)
Error correction mode	Yes
Reports	
Activity report	Yes
Transmission verification report	Yes
Power failure report	Yes
Phone book list	Yes
Quick dial list	Yes
Speed dial list	Yes
Memory manage list	Yes
User parameter list	Yes
Clear memory transmission file	
Memory job clear	Standard
All clear	Standard

Media guidelines

Paper designed for use with xerographic copiers should provide satisfactory print quality and feed reliability. Other media types may be suitable. We recommend that users test any particular brand for suitability to their applications. Refer to the MFP User's Guide for additional media specifications.

Paper

- Rough, highly textured, limp, or pre-curled papers will result in lower print quality and more frequent paper feed failures.
- Colored papers must be able to withstand 338°F (170°C) fusing temperature.
- Preprinted forms and letterheads should be selected using guidelines in the MFP User's Reference. The chemical process used in preprinting may render some papers unsuitable for use with the MFP.
- Unsuitable papers include punched, embossed, water-marked, perforated media, any kind of inkjet paper or plastic-coated paper.
- Recycled paper less than 75 g/m^2 (20 lb) may cause unacceptable results.

The laser printing process heats paper to high temperatures of 170°C (338°F). Use only paper able to withstand these temperatures without discoloring, bleeding, or releasing hazardous emissions. Check with the manufacturer or vendor to determine whether the paper you have chosen is acceptable for laser printers.

Envelopes

Should be fed with short edge first, flap down and to the right.

- If envelope wrinkling occurs, refer to the User's Reference for correct loading and stacking of envelopes.
- All envelopes should be new, unused, and without damage.
- Envelopes with excessive curl or twist exceeding 6.0 mm, those stuck together, those with bent corners or nicked edges, or those that interlock should not be used.
- Minimum weight: 90 g/m^2 (24 lb).
- The following envelopes should not be used:
  — Envelopes with windows, holes, perforations, cutouts, or deep embossing
  — Envelopes with metal clasps, string ties, or metal folding bars
  — Envelopes with exposed flap adhesive when the flap is in the closed position
  — Self-seal envelopes
- Under high-humidity conditions (over 60%), the envelopes may seal during printing.
- For best results, print on new 90 g/m^2 (24 lb) sulfite or 25% cotton-bond envelope.

Transparencies

- Use letter (12A5940) or A4-size (12A5941) sheets only.
- Transparencies are only supported in tray 1 (standard or legal trays).

Labels

- Labels should be selected using guidelines found in the User's Guide, Complete Printer Guide, or the Card stock & Label Guide (located at www.lexmark.com), and tested for acceptability.

- Vinyl labels are not supported.

- Labels are only supported in tray 1 (standard or legal trays).

Glossy Paper

- Use letter (12A5950) or A4-size (12A5951) sheets only.

- Glossy paper is only supported from tray 1 (standard or legal trays).

Sensing by source

Input	Paper size	Paper out	Tray present
Integrated 250-sheet	X	X	X
Optional 530-sheet	X	X	X

Maintenance approach

The diagnostic information in this manual leads you to the correct field replaceable unit (FRU) or part. Use the error code charts, symptom index, and service checks to determine the symptom and repair the failure. The removals in the repair information chapter may help you identify parts.

- Printer messages
- Symptom tables
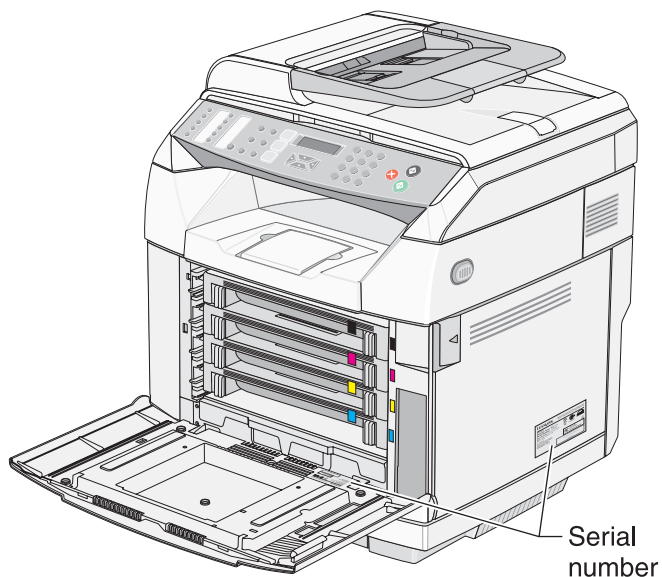- Service checks
- Repair information

After you complete the repair, perform tests as needed to verify the repair. See **"Diagnostic aids" on page 3-1**.

Standard inspection and cleaning procedure

- Switch off printer power, and disconnect the AC power cord from the electrical outlet.
- Remove and inspect the photodevelopers and toner cartridges, shielding them from strong light.
- Inspect the interior of the printer, removing foreign matter such as paper clips, staples, pieces of paper or transparencies, paper dust, hair, oil, grease, or toner.
- Clean the printer interior using a lint-free cloth. Do not use solvents or chemical cleaners to clean the printer interior.
- Use only the specified oil or lubricant on printer parts (some service parts are lubricated at the factory).
- Inspect and, if necessary, clean all rubber/plastic rolls with a lint-free cloth. Dry the rolls with a lint-free cloth.
- While cleaning, inspect the interior of the printer for damaged wires, loose connections, toner leakage, loose springs, and damaged or worn parts.
- Be sure the printer is on a single, flat, strong table or desk top.
- Inspect all supplies (OCR, cartridges, photodevelopers/toner cartridges, belts, fuser maintenance kits and paper sources (cassettes, trays, feeders, duplex drawers, finisher, mailbox trays) for obvious damage and proper installation (paper guides not too tight). Inspect for correct media usage (paper, transparencies, labels).
- Print demo page.
- If additional paper sources are installed, print a demo page from each of these (if possible).
- Failure to print from an additional tray or feeder may imply one or more pins are bent in the mating connector.

Serial number

Look for serial number information on the right cover and the inside of the front cover of your MFP.

Serial number

Tools required for service

The removal and adjustment procedures described in this manual require the following tools and equipment:

- Analog volt ohmmeter (A digital volt ohmmeter may also be used.)
- Flat-blade screwdrivers
- Needle-nose pliers
- #1 Phillips screwdriver
- #2 Phillips screwdriver
- Slotted screwdriver #1
- Slotted clock screwdriver #1
- Tweezers, C-ring pliers

When you make voltage readings, always use frame ground unless another ground is specified.

Acronyms

ADF	Automatic document feeder
ASIC	Application specific integrated circuit
BOOTP	Boot protocol
CCD	Charge coupled device
DDNS	Dynamic domain name service
DHCP	Dynamic host configuration protocol
DPI	Dots per inch
DRAM	Dynamic random access memory
EP	Electrophotographic process
ESD	Electrostatic discharge
FRU	Field replaceable unit
HTTP	Hypertext transport protocol
HV	High voltage
HVPS	High voltage power supply
JBIG	Joint Bi-Level Image Experts Group
LAN	Local area network
LASER	Light amplification by simulated emission of radiation
LCD	Liquid crystal display
LED	Light emitting diode
LV	Low voltage
LVPS	Low voltage power supply
MFP	Multiple function printer
NVRAM	Nonvolatile random access memory
MH	Message handling
MMR	Modified modified read
MR	Modem ready
OEM	Original equipment manufacturer
PABX	Private automatic branch exchange
POR	Power-on reset
POST	Power-on self test
PQET	Print quality enhancement technology
PSTN	Public switched telephone network
RIP	Raster image processor
SMTP	Simple mail transport protocol
SDRAM	Synchronous dynamic random access memory
SNMP	Simple network management protocol
TAD	Telephone answering device
TCP/IP	Transmission control protocol Internet protocol
VAC	Volts alternating current
VDC	Volts direct current
WINS	Windows internet name service